

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/002223

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G01R33/3875

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, IBM-TDB, COMPENDEX, INSPEC, BIOSIS, EMBASE, MEDLINE

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>SHEN J ET AL: "IMPROVEMENTS ON AN IN VIVO AUTOMATIC SHIMMING METHOD (FASTERMAP)" MAGNETIC RESONANCE IN MEDICINE, ACADEMIC PRESS, DULUTH, MN, US, vol. 38, no. 5, 1 November 1997 (1997-11-01), pages 834-839, XP000741762 ISSN: 0740-3194 Sections "Introduction", "Methods", "Discussion" figures 1,3</p> <p>-----</p> <p style="text-align: center;">-/--</p>	1,2,4-6, 9-17, 19-24

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
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- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

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- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the International search  15 October 2004	Date of mailing of the International search report  03/11/2004
Name and mailing address of the ISA  European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  Streif, J

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>SHEN J ET AL: "Linear projection method for automatic slice shimming"  MAGNETIC RESONANCE IN MEDICINE, ACADEMIC PRESS, DULUTH, MN, US, vol. 42, 1999, pages 1082-1088, XP002294863  Page 1082, left-hand column, sections "Methods", "Discussion"</p>	1,2,4-6, 9-17, 19-24
X	<p>WEBB P ET AL: "RAPID, FULLY AUTOMATIC, ARBITRARY-VOLUME IN VIVO SHIMMING"  MAGNETIC RESONANCE IN MEDICINE, ACADEMIC PRESS, DULUTH, MN, US, vol. 20, no. 1, 1 July 1991 (1991-07-01), pages 113-122, XP000219240  ISSN: 0740-3194  Sections "Field mapping pulse sequence", "Determinatoin of shim currents"  figure 1</p>	1,3,5-7, 9,16,17, 20-23
X	<p>GRUETTER R ET AL: "FAST, NONITERATIVE SHIMMING OF SPATIALLY LOCALIZED SIGNALS. IN VIVO ANALYSIS OF THE MAGNETIC FIELD ALONG AXES"  JOURNAL OF MAGNETIC RESONANCE, ACADEMIC PRESS, ORLANDO, FL, US, vol. 96, no. 2, 1 February 1992 (1992-02-01), pages 323-334, XP000261723  ISSN: 1090-7807  the whole document</p>	1,2,4-6, 9-17, 19-24
A	<p>GRUETTER R, TKAC I: "Field mapping without reference scan using asymmetric echo-planar acquisitions"  MAGNETIC RESONANCE IN MEDICINE, ACADEMIC PRESS, DULUTH, MN, US, vol. 43, 2000, pages 319-323, XP002294864  Sections "Materials and Methods", "Results and Discussion"  figure 1</p>	1-6,9-24
A	<p>SHEN J: "Effect of degenerate spherical harmonics and a method of automatic shimming of oblique slices"  NMR IN BIOMEDICINE, JOHN WILEY &amp; SONS, vol. 14, 2001, pages 177-183, XP009035893  the whole document</p>	1-6,9-24
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SHOICHI KANAYAMA ET AL: "IN VIVO RAPID MAGNETIC FIELD MEASUREMENT AND SHIMMING USING SINGLE SCAN DIFFERENTIAL PHASE MAPPING" MAGNETIC RESONANCE IN MEDICINE, ACADEMIC PRESS, DULUTH, MN, US, vol. 36, no. 4, 1 October 1996 (1996-10-01), pages 637-642, XP000629277 ISSN: 0740-3194 Sections "Introduction", "Method", "Conclusions" figure 1	1-6,8, 16-23
A	EP 0 949 512 A (PICKER INT INC) 13 October 1999 (1999-10-13) the whole document	1-24
A	SCHNEIDER E ET AL: "RAPID IN VIVO PROTON SHIMMING" MAGNETIC RESONANCE IN MEDICINE, ACADEMIC PRESS, DULUTH, MN, US, vol. 18, no. 2, 1 April 1991 (1991-04-01), pages 335-347, XP000209846 ISSN: 0740-3194 the whole document	1-24
A	EP 0 393 758 A (PHILIPS NV) 24 October 1990 (1990-10-24) the whole document	1-24
A	SCHÄR M ET AL: "Considerations on shimming for cardiac applications at 1.5 and 3.0 T" PROCEEDINGS OF THE INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE, 11TH SCIENTIFIC MEETING, TORONTO, ONTARIO, CANADA, 10-16 JULY 2003, 10 July 2003 (2003-07-10), page 174, XP002294865 the whole document	1-24

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB2004/002223

Patent document cited in search report	Publication date		Patent family member(s)		Publication date
EP 0949512	A	13-10-1999	US 6064208 A EP 0949512 A2 JP 2000037367 A		16-05-2000 13-10-1999 08-02-2000
EP 0393758	A	24-10-1990	NL 8900990 A EP 0393758 A1 JP 2295547 A US 5099207 A		16-11-1990 24-10-1990 06-12-1990 24-03-1992